



# First record of *Elytraria acaulis* (L.f.) Lindau (Acanthaceae) from the Kerala state and its distribution extension in India

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**Abstract:** *Elytraria acaulis* (L.f.) Lindau (family Acanthaceae) is a perennial herb that is distributed in tropical Africa and Peninsular India. In India, this plant has been recorded from Northern Circar, Deccan, and Carnatic regions, on the eastern side of Peninsular India. We present here a new record from the Walayar Reserve Forest in Palakkad District, Kerala, which is the first known occurrence of this species from the western side of the peninsula. This species is added to the flora of Kerala state.

**Key words:** perennial herb; Peninsular India; Palghat; Walayar; Western Ghats

*Elytraria* Michx. is a genus belonging to the subfamily Nelsonioideae within the Acanthaceae that is represented by 22 species of herbaceous plants that are distributed in tropical Africa, Madagascar, the Indian Subcontinent and the New world (Daniel 1997; Wenk and Daniel 2009). *Elytraria acaulis* (L.f.) Lindau, is a nearly stemless perennial herb with a distribution that encompasses parts of tropical Africa and the Indian Subcontinent (Hyde et al. 2014). Outside of India, *E. acaulis* occurs in Ghana, Nigeria, Democratic Republic of Congo, Angola, Botswana, Somalia, Uganda, Kenya, Tanzania, Malawi, Mozambique, Zambia, Zimbabwe, and South Africa (Wenk and Daniel 2009; Hyde et al. 2014).

*Elytraria acaulis* has been recorded in India from Northern Circar, Deccan, and Carnatic regions (former administrative divisions of the Presidency of Madras; Gamble and Fischer 1936) and Peninsular India (Mathew 1983; 1999; Karthikeyan and Kumar 1993; Pullaiah et al. 2000). It is known from grasslands of Rajasthan (western India; Jain et al. 2005; Krishna et al. 2014), Haryana (northern India; Kumar and Singh 2013), and Madhya Pradesh (central India; Nema et al. 2012). Nowadays, the Northern Circar region is part of coastal Andhra

Pradesh and Ganjam of Odisha; the Deccan region is in Karnataka and Andhra Pradesh states; and the Carnatic region is part of Tamil Nadu, southeast Karnataka, parts of Andhra Pradesh and northeast Kerala states. *Elytraria acaulis* was not reported by Vajravelu (1990) from Palghat district, Kerala state on the western side of the Peninsular India, nor is the plant mentioned by Sasidharan 2004. Hence, in this note, *E. acaulis* is added to the flora of Kerala state.

*Elytraria acaulis* lives in deciduous woodland, often on rocky or loamy/sandy soil, and in partial shade. It is used in medicine by some ethnic people of India in treating skin diseases, ring worm, wounds, boils, burns, abscess of mammary leucorrhoea, snake bites, throat pain and tonsillitis, colic, diarrhoea, piles, and rickets (Jain et al. 2005; Pullaiah 2006; Sikarwar and Jaiswal 2008; Ganesan et al. 2009; Sankaranarayanan et al. 2010; Subbaiah and Savithramma 2012; Padal and Chandrasekhar 2013).

During fieldwork in Walayar Reserve Forest (10°51' 37"N, 076°49'47"E), Kerala state, India (Figure 1), June 2014, we collected samples of a plant that we recognized as new. Specimens were brought to the lab and identified using Gamble and Fischer (1936). Our identification of our specimens as *Elytraria acaulis* was confirmed by comparing our specimens with the collections in the Herbarium of Botanical Survey of India, Southern Circle, Coimbatore, Tamil Nadu. We made further intensive field surveys over three days in the Walayar Reserve Forest to understand the habitat and distribution of *E. acaulis* in the area. Additional samples were collected and prepared for the herbarium. Voucher specimens [V.S. Ramachandran and M. Remesh 121(CESH)] are deposited in the herbarium of Botanical Survey of India, Southern Circle, Coimbatore.

## Specimens examined:

India: Kerala: Palakkad District: Walayar: Nadupathi, V.S. Ramachandran and M. Remesh 121 (CESH!); Tamil Nadu: Kanyakumari

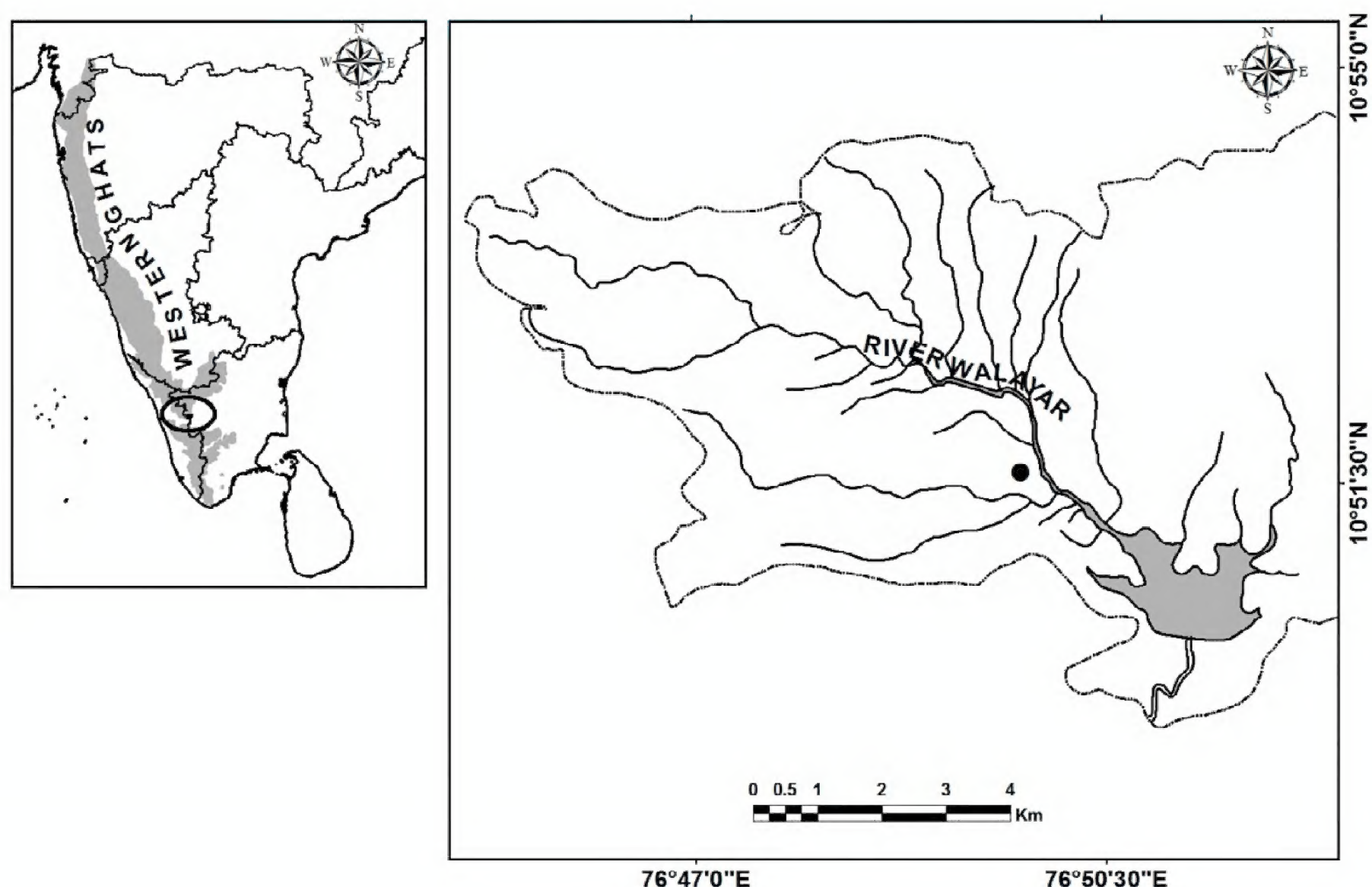


**Figure 1.** Location of Walayar Reserve Forest in Kerala, India and new record of *Elytraria acaulis*. The Walayar River forms the border of Kerala and Tamil Nadu states.

District: Kanyakumari, A.N. Hentry 61566 (MH!); Tirunelveli District: Panangudi, K. Ramamurthy 20289 (MH!); Ramanathapuram District: Chitrangudi, V. Balasubramaniam 1776 (MH!); Ramanathapuram District: Sethur Hills, S.R. Srinivasan 68016 (MH!). Virudhunagar District: Virudhunagar, K. Ramamurthy 93775 (MH!); Virudhunagar District: Mannarthukkudi to Naguriyar Estate, S.R. Srinivasan 94489 (MH!); Virudhunagar District: Srivilliputtur, E. Vajravelu 33828 (MH!); Madurai District: Echimalai, M. Chandrabose 51684 (MH!); Theni District: Murugamalai, K.M. Sebastine 12970 (MH!); Thiruvavur District: Thiruthuraiipoondi, S. Ragupathy 503 (MH!); Tiruchirappalli District: Tiruchirappalli, K.M. Sebastine 6267 (MH!); Pudukkottai District: Viralimalai, Arulappan 149 (MH!); Vellore District: South Arcot, R.F. Pakamalai and K. Ramamurthy 60333 (MH!); Kanchipuram District: Chengalpattu, R.F. Vandallur and A.N. Hentry 45568 (MH!); Dharmapuri District: Hogenakkal, E. Vajravelu 20564 (MH!); Salem District: Mettur, V. Narayanasamy 19048 (MH!); Coimbatore District: Tekkampatti, K. Subramanyan 739 (MH!); Coimbatore District: R.F. Nellimalai and K. Ramamurthy 14128 (MH!); Andhra Pradesh: Nellore District, Kavali, K.C. Jacot 18372 (MH!); Srikakulam District, R.F. Korada and G.V. Subba Rao 62384 (MH!); East Godavari District: Devipatnam, G.V. Subbaran 24438 (MH!). Chittoor District: Mamandur, G.V. Subbaran 31970 (MH!); Kadapa District: Bopanakona Falls, K. Subramanyam 6822 (MH!); Kurnool District: Nallamalais, J.L. Ellis 32550 (MH!); Telangana: Warangal: Ramappa Lake, Palampet, R.K. Premanath 105353 (MH!); Khamman District: Parnabala Forest, R. Chandrasekaran 98777 (MH!); Karimnagar District: Godavari, G.V. Subba Rao 22482 (MH!).

*Elytraria acaulis* is characterized as follows: Leaves obovate, crenate, obtuse, 15–17 cm long, 4–6 cm wide, the bases surrounded by woolly hairs, alternate, crowded and subradical (Figure 2). Flowers small, white in colour, in simple or branched spikes. Scapes 10–20

cm long, covered by spirally imbricate bracts. Calyx 4-partiate, with unequal segments. Corolla tube linear, 2-lipped, lobes 5. Stamens 2, perfect; anthers elliptic. Ovary oblong, 2-celled, with up to 10 ovules. Fruit an oblong capsule. Seeds small, numerous and reticulate. Flowering and fruiting is from March to July.

We collected *Elytraria acaulis* from the undergrowth of a Teak (*Tectona grandis* L.f.) plantation near the tribal hamlet at Nadupathi in the Walayar Reserve Forest. Here, this species prefers partial shade and loamy soil. We made a thorough search in the surrounding area and found that this species is distributed in an area less than 2 km<sup>2</sup> between the Walayar River and one of its tributaries (Figure 2). Our new record is at the northern fringe of the Palghat Gap, in the foothills of the Western Ghats, and nearly 100 m away from the Walayar River on its western side. The river forms the border of Kerala and Tamil Nadu states. Thus, we report the first known occurrence of this species from Kerala. Our new record also represents the westernmost occurrence in India. Our Walayar record is ca. 65 km south of Thekkampatti (K. Subramanyan 739, MH) and Nellimalai (K. Ramamurthy 14128, MH), the two nearest previous records (ca. 7 km apart) in Coimbatore District, Tamil Nadu. The new record at Walayar is also ca. 230 km west of a collection in Tiruchirappalli District (K.M. Sebastine 6267, MH), 192 km southwest of Mettur in Salem District (V. Narayanasamy 19048, MH) and 230 km north of Echimalai in Madurai District (M. Chandrabose 51684, MH).



**Figure 2.** Habit of *Elytraria acaulis* at Walayar Reserve Forest in Kerala, India.

In the Walayar Reserve Forest, we found *E. acaulis* to be entirely within the Teak plantation. This area is prone to ground fire every year; local people use fire for various reasons but the major reason is to collect seeds of the Silk Cotton Tree (*Bombax insigne* Wall.). *Elytraria acaulis* is perennial and ground fire can be a threat for survival of these plants at Walayar. We observed that, when rains stop and the soil dries, plants shows signs of wilting and drying, perhaps a result of the annual fires. This is the current conservation concern for the species at Walayar. However, *E. acaulis* has a wider distribution in India, so the local threat to the species at Walayar may not apply to other Indian locations.

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- Author contributions:** VSR and MM collected the plant. MM identified the plant and collected its distribution details, wrote taxonomic part of the text. VSR confirmed the identity of plant by making match with the herbarium, collected details of previous herbarium records of the plant in peninsular India, found out the distribution of the plant in the study area, wrote the text.
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